

No. 717,086.

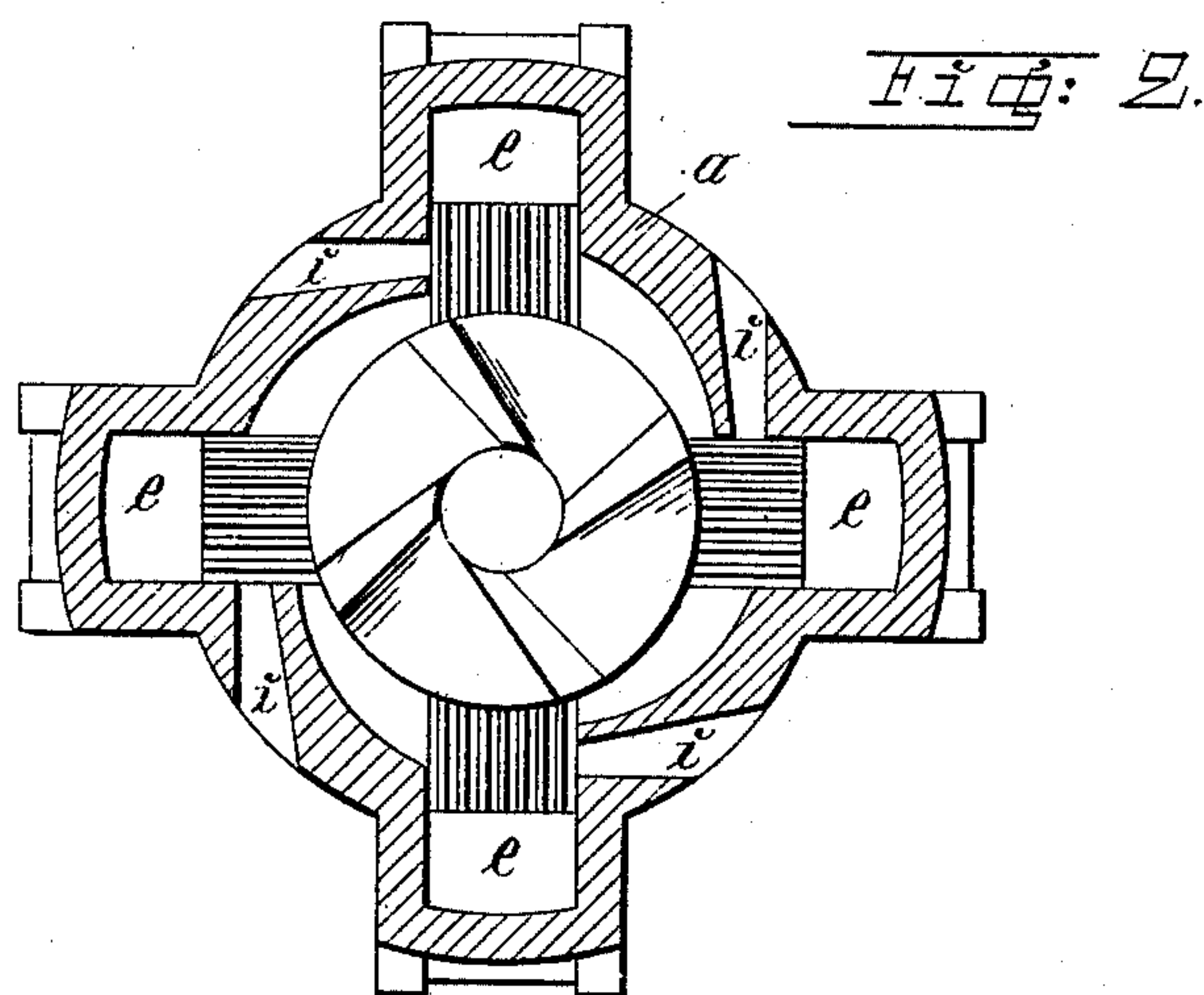
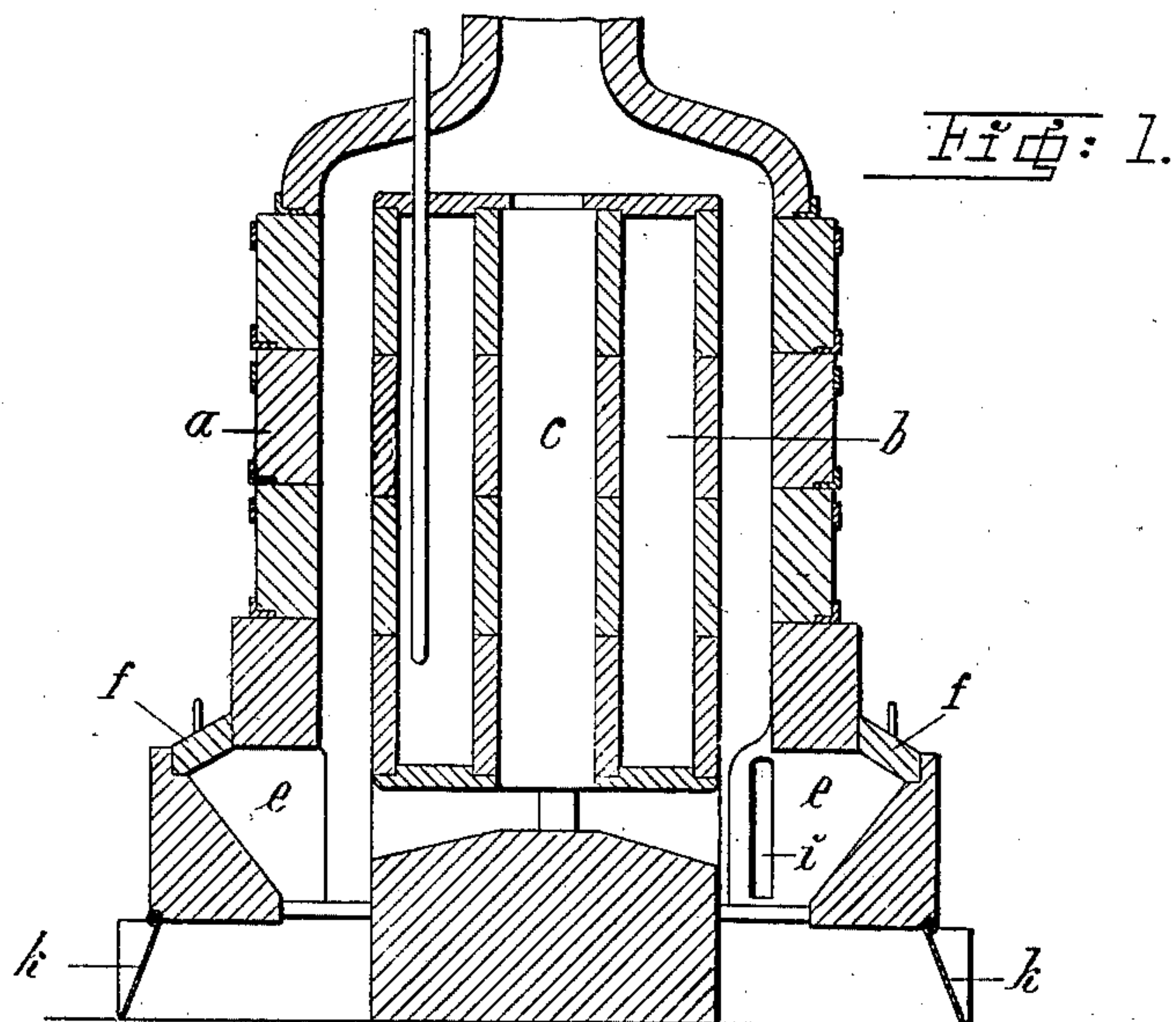
Patented Dec. 30, 1902.

H. ELMQVIST.

FURNACE FOR GLOWING MOLDS FOR METAL CASTINGS.

(Application filed Nov. 27, 1901.)

(No Model.)



Witnesses
Attest

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UNITED STATES PATENT OFFICE.

HUGO ELMQVIST, OF FLORENCE, ITALY.

FURNACE FOR GLOWING MOLDS FOR METAL CASTINGS.

SPECIFICATION forming part of Letters Patent No. 717,086, dated December 30, 1902.

Application filed November 27, 1901. Serial No. 83,910. (No model.)

To all whom it may concern:

Be it known that I, HUGO ELMQVIST, a subject of the King of Sweden and Norway, residing at Florence, Italy, have invented certain new and useful Improvements in Furnaces for Glowing Molds for Metal Castings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

In the casting of objects of art in metal it is necessary to thoroughly dry the mold by "glowing" it before the casting takes place in order to obviate the danger of the mold bursting when the molten metal is poured in. During this glowing, however, the mold loses in strength as the binding material entering into the composition of the material of which the mold is constituted is either vaporized or in some way loses its binding properties. For this reason it has been found advantageous to add a substance to the material of which the mold is formed which assumes the role of binding material during the glowing and retains this property. In order to impart to this substance the desired binding properties during the glowing operation, it is necessary that this operation should be effected at a considerably higher temperature than has hitherto been the case, and it is equally important that the heat should act evenly and uniformly upon the whole of the substance of the mold. To attain this, a special oven or furnace is requisite, and the provision of such a furnace forms the subject of this invention.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section through the furnace, and Fig. 2 is a horizontal section through the same.

One of the main characteristics of my improved furnace consists in the fact that the draft necessary for the fire does not come into contact with the substance of the mold. In order to secure this, the furnace is provided with a hermetically-closed chamber or muffle, in which the mold is placed during the glow-

ing operation. The hot combustion-gases generated in the furnaces are caused to circulate as long as possible around the muffle containing the mold. The muffle *b* is arranged directly within the outer wall *a* of the furnace. This muffle is traversed by a central flue, which communicates with the chamber beneath the muffle, and this latter in turn communicates with the four grates *e*, into which the fuel is introduced by means of the stoke-holes *f*.

As shown in the drawings, the grates are in direct communication with the space or chamber surrounding the muffle *b*. In order to permit of uniform circulation of the combustion-gases around the muffle *b* and complete utilization of the heat of these gases, a flue *i* is formed in the wall *a* and opens laterally into each grate. The air entering through these flues causes the flame in each grate to strike against the side opposite to the said flue, and in this manner the heat from each of the grates is uniformly distributed and circulates spirally around the muffle. The velocity of this spirally-ascending movement of the combustion-gases may be regulated by means of the ash-pit doors *k*. The wider these doors are opened the more rapidly will the hot gases pass upward. Both the outer wall *a* of the furnace and the muffle *b* are built up of annular sections of fireproof material arranged one upon the other. According to the height to which it is desired to build the furnace a greater or smaller number of these sections are superposed. When desired, the central passage or chamber in the muffle may be dispensed with, the openings in the top and bottom of the muffle being closed. The molds to be heated are arranged in the annular chamber of the muffle, shelves being provided for their reception, if necessary. In order to indicate when the temperature has reached a point sufficient to complete the operation, a pyrometer is provided in the muffle.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

In an oven for glowing molds for metal casting, the combination of a kiln, a muffle centrally arranged therein, a plurality of fur-

naces each opening below and around said muffle, and a flue for each furnace-opening therein on one side thereof for forcing the heat from each of the furnaces to circulate
5 spirally around the muffle, substantially as for the purpose described.

In testimony that I claim the foregoing as

my invention I have signed my name in presence of two subscribing witnesses.

HUGO ELMQVIST.

Witnesses:

F. HADIN,
J. OSTLUND.